

Supplementary Information S2 (movie) | Representative time-lapse images of axonal mitochondrial motility in cultured hippocampal neurons from the *syntaphilin*^{-/-} mice.

In contrast to the motility pattern found in the wild-type neurons, the majority (>70 %) of axonal mitochondria in *syntaphilin*^{-/-} neurons undergo dynamic and fast movements along axons in both directions, a phenotype that has not yet been reported for mature wild-type hippocampal neurons in culture. Hippocampal neurons were transfected with DsRed-Mito at DIV9, followed by ~16 min time-lapse imaging at DIV12. Time-lapse sequences of 100 frames were collected at 10-sec intervals. Movement towards the bottom indicates retrograde transport.